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U.S. Department of the Interior • U.S. Geological Survey

# MINERAL INDUSTRY SURVEYS

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## COBALT IN OCTOBER 1996

U.S. consumption of cobalt during January through October 1996 was basically the same as consumption during the first 10 months of 1995, according to the U.S. Geological Survey (USGS). U.S. imports of cobalt metal and cobalt contained in chemicals during January through September 1996 were slightly higher than imports during the first 9 months of 1995. Exports of unwrought cobalt and cobalt contained in chemicals were 35% higher in January through September 1996 than during the same period in 1995. Trade data for October will be available in a subsequent issue.

### Note

With the exception of prices, all data in this report have been rounded to no more than three significant digits. Totals and percentages were calculated using unrounded data. Domestic data on U.S. cobalt consumption and stocks are developed by the USGS from voluntary surveys of U.S. operations. The data in tables 1 through 3 contain estimates to account for nonrespondents and are subject to revision.

### New Publication

The 1995 cobalt Annual Review is now available. To retrieve this report from MINES FaxBack, call (703) 648-4999 from the phone attached to your fax machine and request document number 210495. To retrieve the report from the Internet, go to the Minerals Information home page (<http://minerals.er.usgs.gov/minerals>), then find "Minerals Yearbook" by looking under either "Products" or "Commodity." The Adobe Acrobat software necessary to read the file can be downloaded from the home page.

### Update

On December 4, the Defense Logistics Agency (DLA) announced the results of its December 2nd cobalt offer.

Approximately 450 tons (1 million pounds) of cobalt metal with a cobalt content of 99.05% to 99.52% was available under a sealed bid basis. The DLA awarded 91 tons (200,806 pounds) at a total value of \$3.9 million to Glencore Ltd. of Stamford, CT. Two grades of cobalt were sold: 42 tons of 99.30% to 99.39% cobalt were sold for \$20.01 per pound, and 49 tons of 99.00% to 99.29% cobalt were sold for \$19.01 per pound. The next cobalt sale will be held in February and will be on a negotiated bid basis. For further information please contact June Olmsted, DLA's contracting officer for cobalt, at (703) 767-5492.

On December 11, the DLA announced its annual materials plan for fiscal year 1997. Under the plan, the maximum amount of cobalt that can be sold during the period of October 1, 1996 through September 30, 1997 is 2,720 tons (6 million pounds).

Price update, dollars per pound of electrolytic cobalt (Source--Platt's Metals Week):

<u>Week ending</u>	<u>Price range</u>
Nov. 8	20.50-21.50
Nov. 15	20.75-21.75
Nov. 22	21.00-22.00
Nov. 29	21.00-22.00
Dec. 6	21.00-22.00
Dec. 13	21.00-22.00
Dec. 20	21.00-22.00
Dec. 27	21.00-22.00
Jan. 3	21.00-22.00
Jan. 10	21.25-22.25

### Monthly averages

<u>November</u>	<u>December</u>
21.29	21.50

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Prepared by the Metals Section and the Data Collection and Coordination Section, January 31, 1997.

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TABLE 1  
U.S. REPORTED CONSUMPTION OF COBALT MATERIALS 1/

(Metric tons, contained cobalt)

Period	Metal 2/	Oxide and other chemical compounds 3/	Scrap	Total
1995:				
October	279	144	127	550
November	282	119	133	533
December	250	137	130	517
January-October r/	2,670	1,430	1,280	5,380
January-December 4/	3,200	1,690	1,540	6,430
Year 5/	3,660	1,800	1,540	7,000
1996:				
January	291	145	132	569
February	265	148	124	537
March	279	129	133	541
April	268	129	125	522
May	295	136	128	560
June	259	135	136	530
July r/	262	151	129	542
August	289	136	132	556
September r/	281	133	136	549
October	284	137	138	558
January-October	2,770	1,380	1,310	5,460

r/ Revised.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes metal powder.

3/ Data may include other cobalt materials.

4/ Data based on monthly reports.

5/ Includes annual reports.

TABLE 2  
U.S. REPORTED CONSUMPTION OF COBALT, BY END USE 1/

(Metric tons, contained cobalt)

End use	1995			1996	
	January- October	January- December 2/	Year 3/	October	January- October
Steel:					
Stainless and heat resisting	32 r/	38	38	3	32
Tool	W	W	146	W	W
Superalloys	2,200 r/	2,650	2,940	232	2,300
Alloys (excludes steels and superalloys):					
Magnetic alloys	578 r/	698	757	58	568
Welding materials (structural and hard-facing) 4/	223	264	287	22	227
Other alloys 5/	49 r/	59	80	5	48
Cemented carbides 6/	635 r/	746	748	72	659
Chemical and ceramic uses:					
Catalysts	597 r/	713	732	53	551
Driers in paints or related usage	665 r/	770	770	56	580
Ground coat frit	143	172	172	21	188
Pigments	W	W	172	W	W
Miscellaneous and unspecified 7/	252 r/	311	163	36	307
Total	5,380 r/	6,430	7,000	558	5,460

r/ Revised. W Withheld to avoid disclosing company proprietary data; included in "Miscellaneous and unspecified."

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Data based on monthly reports.

3/ Includes annual reports.

4/ Includes wear-resistant alloys.

5/ Includes nonferrous alloys.

6/ Includes diamond bit matrices, cemented and sintered carbides, and cast carbide dies or parts.

7/ Includes feed or nutritive additive, full-alloy steel, glass decolorizer, mill products made from metal powder, and data indicated by the symbol "W."

TABLE 3  
U.S. REPORTED STOCKS OF COBALT MATERIALS 1/

(Metric tons, contained cobalt)

	Industry 2/				U. S. Government 3/
	Metal 4/	Oxide and other chemical compounds 5/	Scrap	Total	Metal
1995:					
October	269	292	101	662	21,000
November	249	317	103	669	20,800
December 6/	323	283	103	709	20,700
Yearend 7/	390	309	103	802	20,700
1996:					
January	309	320	135	764	20,700
February	275	300	150	725	20,700
March	274	702 r/	152	1,130	20,400
April	277	699	138	1,110	20,100
May	258	694	138	1,090	19,800
June	232	695	99	1,030	19,600
July	251	695	99	1,040	19,500
August	363 8/	416 8/	96	875	19,300
September	341 r/	299	98	738 r/	19,000
October	321	301	101	723	18,900

r/ Revised.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Stocks reported by cobalt processors and consumers.

3/ Data from Defense Logistics Agency, Defense National Stockpile Center. Includes material committed for sale pending shipment.

4/ Includes metal powder.

5/ Data may include other cobalt materials.

6/ Data based on monthly reports.

7/ Includes annual reports.

8/ Data being questioned.

TABLE 4  
U.S. IMPORTS FOR CONSUMPTION OF COBALT, BY COUNTRY 1/

(Kilograms, gross weight of material, except as noted)

Period and country of origin	Metals 2/		Oxides and hydroxides		Salts and compounds 3/		Total cobalt content for the month 5/	Cobalt content, year to date 5/ 6/
	Quantity	Value 4/	Quantity	Value 4/	Quantity	Value 4/		
1995:								
September	399,000	\$24,400,000	65,200	\$3,070,000	163,000	\$2,330,000	493,000	5,100,000
October	531,000	31,700,000	29,700	1,310,000	110,000	1,420,000	583,000	5,680,000
November	259,000	16,200,000	58,900	2,780,000	98,800	1,350,000	328,000	6,010,000
December	411,000	25,900,000	16,300	722,000	16,000	189,000	427,000	6,440,000
January-December	5,530,000	325,000,000	808,000	34,300,000	1,170,000	15,800,000	6,440,000	XX
1996:								
January	515,000	30,000,000	53,000 7/	2,060,000 7/	276,000 7/	3,480,000 7/	627,000	627,000
February	470,000	29,900,000	57,100	2,810,000	25,600 7/	314,000 7/	519,000	1,150,000
March	540,000	36,000,000	49,800 7/	2,450,000 7/	183,000 7/	2,300,000 7/	626,000	1,770,000
April	432,000	27,500,000	147,000	6,370,000	104,000	1,340,000	566,000	2,340,000
May	457,000	27,500,000	62,100	2,730,000	55,200	786,000	515,000	2,850,000
June	606,000 7/	36,000,000 7/	82,200	3,710,000	88,800	1,170,000	689,000	3,540,000
July	571,000	33,000,000	93,900	4,440,000	60,200	778,000	655,000	4,200,000
August	480,000	24,800,000	112,000 7/	2,160,000 7/	38,600	405,000	571,000	4,770,000
September:								
Australia	--	--	--	--	--	--	--	7,440
Austria	--	--	--	--	--	--	--	195
Belgium	5,700	480,000	20,000	827,000	--	--	20,100	239,000
Brazil	10,000	414,000	--	--	--	--	10,000	36,800
Canada	98,700	5,260,000	8,400	349,000	1,230	34,200	105,000	754,000
China	--	--	--	--	--	--	--	1,250
Finland	26,100	1,140,000	25,200	939,000	92,600	861,000	69,300	954,000
France	340	32,800	2,720	251,000	--	--	2,300	29,900
Germany	6,500	432,000	150	13,200	--	--	6,610	79,100
Hong Kong	--	--	--	--	--	--	--	500
Japan	--	--	2,080	55,600	--	--	1,500	25,600
Netherlands	--	--	--	--	--	--	--	5,270
Norway	145,000	7,360,000	--	--	--	--	145,000	1,270,000
Russia	38,600 7/	779,000 7/	--	--	6,760	58,700	40,200	506,000
South Africa	500	23,800	--	--	--	--	500	12,500
Spain	--	--	--	--	--	--	--	20,200
Sweden	--	--	--	--	--	--	--	708
Switzerland	--	--	--	--	--	--	--	960
United Kingdom	2,730	128,000	--	--	--	--	2,730	94,400
Zaire	5,000	267,000	--	--	--	--	5,000	339,000
Zambia	93,000	4,200,000	--	--	--	--	93,000	892,000
Total	432,000	20,500,000	58,600	2,440,000	101,000	954,000	502,000	5,270,000

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Unwrought cobalt, excluding alloys; includes cobalt cathode and cobalt metal powder.

3/ Includes cobalt sulfates, cobalt chlorides, cobalt carbonates, and cobalt acetates.

4/ Customs value.

5/ Estimated from gross weights.

6/ Year to date may include revisions to prior months.

7/ All or part of these data have been referred to the Bureau of the Census for verification.

Source: Bureau of the Census.

TABLE 5  
U.S. IMPORTS FOR CONSUMPTION OF ADDITIONAL COBALT MATERIALS, BY COUNTRY 1/

(Kilograms, gross weight of material, except as noted)

Period and country of origin	Unwrought cobalt alloys		Other cobalt: matte, waste and scrap 2/		Wrought cobalt and cobalt articles	
	Quantity	Value 3/	Quantity	Value 3/	Quantity	Value 3/
1995:						
September	8,380	\$242,000	60,200	\$1,080,000	7,710	\$516,000
October	10,400	684,000	78,100	1,050,000	15,400	813,000
November	4,020	268,000	33,500	444,000	11,800	901,000
December	6,440	566,000	33,400	631,000	21,200	1,360,000
January-December	98,200	5,330,000	880,000	12,400,000	155,000	9,760,000
1996:						
January	5,110	414,000	30,600	452,000	10,400	563,000
February	6,560	490,000	90,900 4/	833,000 4/	16,000	651,000
March	1,340	107,000	71,200	1,370,000	21,800	1,410,000
April	3,940	213,000	48,700	954,000	19,000	1,270,000
May	3,940	326,000	52,800 4/	1,880,000 4/	19,800	1,270,000
June	2,630	108,000	10,900 4/	396,000 4/	13,800	1,070,000
July	4,380	337,000	72,300 4/	2,820,000 4/	11,500	824,000
August	8,080	313,000	84,700 4/	2,030,000 4/	10,500	676,000
September:						
Belgium	--	--	4,600	378,000	--	--
Canada	571	42,400	2,420	91,200	158	23,700
Finland	--	--	3,600	258,000	--	--
France	436	38,900	85	8,870	2,020	130,000
Germany	1,050	119,000	4,490	114,000	127	9,630
Japan	250	21,100	--	--	3,420	234,000
Sweden	--	--	54	5,440	--	--
United Kingdom	--	--	1,570	19,900	6,790	481,000
Total	2,310	221,000	16,800	875,000	12,500	878,000

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes other intermediate products of cobalt metallurgy; may include other cobalt-bearing materials from which cobalt is extracted, or from which cobalt-containing chemical compounds are manufactured.

3/ Customs value.

4/ All or part of these data have been referred to the Bureau of the Census for verification.

Source: Bureau of the Census.

TABLE 6  
U.S. EXPORTS OF COBALT MATERIALS 1/

(Kilograms, gross weight of material, except as noted)

	Unwrought cobalt, powders, matte, waste and scrap 2/		Oxides and hydroxides		Salts and compounds 3/		Total cobalt content for the month 5/	Cobalt content, year to date 5/ 6/
	Quantity	Value 4/	Quantity	Value 4/	Quantity	Value 4/		
1995:								
September	151,000	\$8,590,000	28,900	\$1,020,000	60,500	\$931,000	186,000	1,000,000
October	92,900	6,090,000	28,200	511,000	12,400	217,000	116,000	1,120,000
November	72,300	3,260,000	11,200	248,000	25,700	416,000	86,600	1,200,000
December	71,400	4,690,000	18,600	724,000	43,200	772,000	95,300	1,300,000
January-December	898,000	49,000,000	271,000	8,850,000	860,000	7,080,000	1,300,000	XX
1996:								
January	70,200	5,050,000	31,300	889,000	34,500	788,000	101,000	101,000
February	76700	4750000	20200	642000	42000	510000	101000	202000
March	214,000	13,000,000	29,100	1,070,000	336,000	318,000	316,000	518,000
April	168,000	9,640,000	24,300 7/	497,000 7/	15,100	132,000	189,000	707,000
May	145,000	6,930,000	22,700 7/	689,000 7/	20,500	346,000	166,000	873,000
June	159,000	7,500,000	13,300 7/	514,000 7/	20,600	310,000	173,000	1,050,000
July	61,500	2,760,000	30,100 7/	377,000 7/	21,200	279,000	88,300	1,130,000
August	88,700	3,160,000	40,000 7/	362,000 7/	26,600	292,000	124,000	1,260,000
September	58,200	2,370,000	35,600 7/	1,060,000 7/	47,800	231,000	95,400	1,350,000

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ May include other intermediate products of cobalt metallurgy, and unwrought cobalt alloys.

3/ Cobalt acetates and cobalt chlorides.

4/ Free alongside ship (f.a.s.) value.

5/ Estimated from gross weights.

6/ Year to date may include revisions to prior months.

7/ All or part of these data have been referred to the Bureau of the Census for verification.

Source: Bureau of the Census.

TABLE 7  
U.S. EXPORTS OF WROUGHT COBALT, COBALT ORE, AND CONCENTRATES 1/

(Kilograms, gross weight of material, except as noted)

Period and country of origin	Wrought cobalt and cobalt articles		Cobalt ore and concentrates	
	Quantity	Value 2/	Quantity	Value 2/
1995:				
September	95,900	\$2,060,000	21,200	\$32,700
October	41,400	1,220,000	20,000	59,000
November	40,500	1,930,000	50,800	565,000
December	9,070	682,000	1,710	2,700
January-December	485,000	17,800,000	139,000	1,610,000
1996:				
January	38,800	1,640,000	8,050 3/	105,000 3/
February	18,300	1,630,000	5,560 3/	337,000 3/
March	24,100	2,060,000	10,900 3/	130,000 3/
April	25,400	1,890,000	21,700 3/	1,020,000 3/
May	18,800	1,460,000	19,300 3/	174,000 3/
June	62,000	2,150,000	--	--
July	28,500	1,170,000	13,400 3/	496,000 3/
August	67,100	1,660,000	43,500 3/	1,050,000 3/
September	31,000	1,780,000	56,200 3/	2,250,000 3/

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Free alongside ship (f.a.s.) value.

3/ All or part of these data have been referred to the Bureau of the Census for verification.

Source: Bureau of the Census.